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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/690,271	10/17/2000	Se-Lee Chang	12495-002001	3672

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EXAMINER
BERMAN, SUSAN W

ART UNIT	PAPER NUMBER
1711	

DATE MAILED: 10/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/690,271	CHANG ET AL.	
	Examiner	Art Unit	
	Susan W Berman	1711	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- *Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.*
- *If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.*
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2003* .

2a)☒ This action is **FINAL.** 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *3,4 and 6-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *3,4 and 6-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ *are subject to restriction and/or election requirement.*

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 10/2000 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Response to Amendment

The objection to the Specification is withdrawn.

The rejection of claims 9, 11 and 16 under 35 U.S.C. 112, second paragraph, is withdrawn.

Response to Arguments

Applicant's arguments filed 08-11-2003 have been fully considered but they are not persuasive.

Applicant argues that NEITHER Duecker not Szum teaches or suggest a urethane acrylate having a three component copolymer backbone in which a PDMS moiety is embedded. However, Duecker specifically mentions a polyether-based urethane acrylate containing silicone in the backbone in column 4, lines 17-27. It is agreed that Szum does not disclose a urethane acrylate wherein a second polyol as well as a PDMS polyol is employed to form the backbone. Shustack also discloses a silicone-modified polyether urethane acrylate, exemplified by EBECRYL 4842 (column 7, lines 64-65).

The Declaration of Se Lee Chang, submitted 08-11-2003, has been considered but is found unpersuasive because the instant claims are not considered to be commensurate in scope with the showing of unexpected results. The data appears to show an unexpected significant difference in tensile strength and shrinkage for compositions of the invention compared with compositions representative of the disclosure of Duecker. However, each resin according to the invention is obtained by copolymerizing a polycaprolactone diol with one of the silicone diols set forth in instant claim 4. The claim 4 recitation of "a second polyol compound" is not considered sufficient to distinguish the instantly claimed composition having significantly different properties from the prior art compositions. The silicone representative of Duecker is obtained by copolymerizing a polyether polyol with a silicone polyol. Thus, the difference in properties appears to result from the different "second polyol" employed. There is no data of record to show that the same or similar results are obtained wherein a polyol other than polycaprolactone polyol is employed to form the backbone with the silicone polyol. It is noted that Example 4 according to the

instantly claimed invention does not contain a silicone diol and was not considered with respect to the showing.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 3, 4, 6-9 and 11-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duecker (6,122,428, having an effective filing date of 06-27-1989) in combination with Szum et al (6,110,593). See the previous Office Action for discussion of the teachings of the references.

It would have been obvious to one skilled in the art at the time of the invention to employ a silicone compound having hydroxyl functionality, as taught by Szum et al in analogous art, to provide the silicone-modified polyether-based urethane acrylates in the compositions disclosed by Duecker. It would have been obvious to one skilled in the art at the time of the invention to prepare the silicone-modified urethane acrylate in the presence of a urethane catalyst and a polymerization inhibitor, as taught by Szum et al. One of ordinary skill in the art at the time of the invention would have been motivated by a reasonable expectation of success because the reaction of polyols, polyisocyanates and hydroxy-functional acrylate in the presence of a urethane catalyst and polymerization inhibitor to provide an acrylated urethane having a desired backbone provided by the polyols employed is well known in the art, as shown by the disclosure of Szum et al. Szum et al provide motivation to employ a silicone compound with hydroxyl functionality in order to provide a fiber friction that results in a resistive force less than the cohesive strength of the inner primary composition for optical fibers. Duecker et al provide motivation to use a silicone-modified urethane acrylate by employing such compounds in the Examples. With respect to claims 16, 18 or 19, these properties are not mentioned by Duecker. Szum et al report "fiber pull-out

friction in g/cm". There is no comparative data of record representative of the disclosure of Duecker to show that the properties set forth in the claims are unexpected. The comparative examples in the specification comprise (1) a urethane acrylate based on polycaprolactone polyol and polytetramethylene glycol or (2) a polyester oligomer.

Claims 3,4 and 6-19 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Duecker (6,122,428, having an effective filing date of 06-27-1989) in view of Shustack (5,908,873) and further in view of Ohtaka et al (5,787,218). See the previous Office Action for Discussion of the teachings of the references.

Duecker does not mention the preparation or components of the disclosed silicone-modified urethane acrylate. Thus Duecker does not discuss specific silicone polyols or using a urethane catalyst or polymerization inhibitor in the preparation of the silicone-modified urethane acrylate. Shustack teaches urethane catalysts for preparation of analogous silicone-modified urethane acrylate oligomers, but does not mention polydimethylsiloxane polyols or adding a polymerization inhibitor. Ohtaka et al teach using a polymerization inhibitor and a urethane catalyst in a method for preparation of a urethane acrylate oligomer from polyols, polyisocyanates and hydroxy acrylate monomers, analogous to the urethane acrylate oligomers taught by Duecker and Shustack. Ohtaka et al also teach that the polyols employed to prepare urethane acrylates can be diols with a polydimethylsiloxane terminal group or polydimethylsioxane carbitol-modified diols.

In the absence of evidence to the contrary, it is the examiner's position that one of ordinary skill in the art at the time of the invention would have immediately envisioned that the silicone-modified urethane acrylate taught by Duecker and/or Shustack is synthesized from a hydroxyl-terminated polydimethylsiloxane with a polyisocyanate and an acrylate alcohol. The reason is that Duecker and Shustack each teach that the disclosed urethane acrylates are based on polyether polyols reacted with

polyisocyanate and acrylated and that other kinds of polyols, including silicone-containing polyols, can also be incorporated. It would have been obvious to one skilled in the art at the time of the invention to employ a hydroxy-functional polydimethylsiloxane as one of the polyol components to provide a silicone-modified urethane acrylate as disclosed by Duecker or Shustack, as taught by Ohtaka et al. It would have been obvious to one skilled in the art at the time of the invention to employ a urethane catalyst, as taught by Shustack or Ohtaka et al in analogous art, to prepare the silicone-modified urethane acrylate disclosed by Duecker. It would have been obvious to one skilled in the art at the time of the invention to employ a polymerization inhibitor such as phenothiazine, to prepare a urethane acrylate oligomer to use in the compositions disclosed by Duecker and Shustack, as taught by Ohtaka et al. One of ordinary skill in the art at the time of the invention would have been motivated by a a reasonable expectation of successfully providing a silicone-modified urethane acrylate. The reason is that use of known urethane catalysts and polymerization inhibitors to prepare a urethane acrylate is well known in the art, as shown by the disclosure of Shustack or Ohtaka et al. It would have been obvious to one skilled in the art to employ a release agent as disclosed by Shustack as an additive in the compositions disclosed by Duecker in order to obtain the benefits of the properties thereof. With respect to claim 13, the release agent taught by Shustack and used in the examples corresponds to the leveling/defoaming agents disclosed by Applicant. With respect to claims 16, 18 or 19, these properties are not mentioned by Duecker. There is no comparative data of record representative of the disclosure of Duecker to show that the properties set forth in the claims are unexpected. The comparative examples in the specification comprise (1) a urethane acrylate based on polycaprolactone polyol and polytetramethylene glycol or (2) a polyester oligomer.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan W Berman whose telephone number is 703 308 0040. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on 703 308 2462. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0661.

Susan W Berman
Primary Examiner
Art Unit 1711

SB
October 20, 2003